

Theory	Relevance to Mathematical Teaching
<p>ARCS Theory</p> <p>The ARCS theory is the foundation for motivation. It hypothesizes how the students can be motivated to learn based on four steps:</p> <p>Attention: This can be achieved in one of two ways, either through perceptual arousal (surprise or uncertainty) or through inquiry arousal (challenging questions or problems)</p> <p>Relevance: Establishing a relationship between what the student is learning and its usefulness. There are six major ways to achieve this: 1. Illicit using past experience. 2. The value of gaining the knowledge today. 3. Its value in the future. 4. Matching the need to students' behaviour. 5. Using role models 6. Allowing the students some choice in their learning method</p> <p>Confidence: Building confidence among the learners to keep them motivated by providing objectives and prerequisites, small achievable goals, feedback and believing that their success is a direct result of the efforts that they have been put in.</p> <p>Satisfaction: Learners must feel satisfied by gaining some sort of recognition. This can be achieved by allowing the learner to use the newly acquired knowledge in a task and providing feedback about the results the learner has achieved. It is also important to make sure there is balance between the complements given and the results achieved.</p>	<p>I believe this theory can be modified to be used in teaching mathematics. Based on my experience in mathematics classes, I have noticed that many students who have trouble in math usually lack confidence in themselves regarding the subject. Therefore one has to build confidence in the students first, then gaining the learners attention and using relevance to the real world to entice the learners sense of interest. Lastly the learner must be satisfied by the knowledge gained so that it can be used as the confidence builder for the next lesson.</p>
<p>Experiential Learning</p> <p>This theory builds on the previous experience of the learner. The theory consists of four stages which include: The experience → new observation → new learning → experimenting new learning.</p>	<p>As mathematics builds on prior knowledge this theory would most definitely apply. Using this theory we can base our teaching on the prior mathematical learning and build on the lesson.</p>

<p>Elaboration Theory</p> <p>This theory stipulates that learning should be organized from simple to most complex. This explains a path in which previous learning can be built on to introduce the next lesson.</p> <p>This theory purposes three different approaches: 1. Conceptual Elaboration for when there are many related concepts 2. Theoretical Elaboration for when there are many different principals and 3. Simplifying Conditions for when a moderate complexity needs to be taught.</p>	<p>Once students are motivated in learning the mathematics subject, this theory can be used as a guide to help math teachers in building a lesson plan. In mathematics each subject can seem overwhelming to a learner. Therefore by using this theory the teacher can introduce a subject with very simple examples and then move to more complex examples of the same subject. For example, when teaching fraction additions, one can use fractions of same denominator first before showing additions of unlike denominators, therefore establishing a link.</p>
<p>Cognitive theory of multimedia learning</p> <p>This theory stipulates that people learn better when there is words and pictures involved instead of words alone.</p> <p>This theory makes three assumptions: 1. There is an auditory and visual channels for processing information. 2. Each channel can only comprehend a limited amount of information. 3. Learning is based on prior knowledge</p> <p>This theory stresses that words, pictures and audio are not deciphered in isolation, but they are brought together to form a concept.</p>	<p>After the teacher has made the path in which a lesson should be taught (Elaboration theory). She can use this theory to teach each part of the lesson. For example based on the same example as previous theory for adding fractions, we can add a picture of a circular pizza to explain the addition process and the reasoning behind our lesson.</p>

